REPUBLIC OF NAMIBIA

REGIONAL TRANSPORT AND TRADE LOGISTICS IN NAMIBIA

A POLICY NOTE

May 31, 2012

Poverty Reduction Economic Management 1
Southern Africa
Africa Region

CURRENCY EQUIVALENTS
(as of May 18, 2012)

Currency Unit	=	Namibia dollar (N$)
Namibian dollar 1	=	US$ 0.1191
U.S. dollar 1	=	N$ 8.3984

GRN FISCAL YEAR
(April 1-March 31)

WEIGHTS AND MEASURES
Metric System

ABRREVIATIONS AND ACRONYMS

AICD	Africa Infrastructure Country Diagnostic
AIDC	Automotive Industry Development Centre
CBS	Central Bureau of Statistics
COMESA	Common Market for Eastern and Southern Africa
CSIR	Council for Scientific and Industrial Research
DRC	Democratic Republic of Congo
GDP	Gross domestic product
GRN	Government of the Republic of Namibia
HS	Harmonised System
JICA	Japan International Cooperation Agency
NDP4	National Development Plan IV
NPC	National Planning Commission
SACU	Southern Africa Customs Union
SADC	Southern Africa Development Community
TKC	Trans-Kalahari Corridor
TKRR	Trans-Kalahari Railroad
UNCTAD	United Nations Conference on Trade and Development
WBCG	Walvis Bay Corridor Group

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Acknowledgements

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Executive summary

During the past decade Namibia has been positioning itself to become an international trade gateway for nearby countries. Namibia has capitalized on its assets of good transportation infrastructure, security and stability, efficient customs administration, and supportive business environment to develop a growing transit trade business. The results to date have been quite positive: Traffic along the international transit corridors connecting Namibia's seaports to countries in the region grew at an average annual rate of 33 percent between 2005 and 2011—despite a downturn in 2009–2010 caused by the global economic crisis.

Making Namibia a regional logistics hub, and perhaps eventually a platform for distribution services and assembly operations, can make an important contribution to realizing the objectives the country set for itself in Vision 2030: to become "a prosperous and industrial nation, developed by her human resources, and enjoying peace, harmony and political stability." Since Independence, Namibia has been stuck on a path of jobless growth. The structure of production and international trade has changed very little from what the country inherited in 1990. Production is centered on primary commodities and (largely non-tradable) services. Merchandise exports are concentrated in minerals and metals. This structure has generated modest GDP growth of 4.2 percent per year on average, but it has not delivered jobs. The high unemployment inherited at Independence has not only persisted, but it has increased.

To move onto a trajectory of more rapid growth and job creation, the economy needs to diversify into high productivity activities such as manufacturing and tradable services, including modern transport and trade logistics services. As Namibia's transport and logistics sector expands to handle growing traffic along the international transit corridors, this has the potential to create economic spillovers that can attract new types of businesses to Namibia and reduce trade costs for the economy as a whole, not just for the companies engaged in the transit trade business.

Achieving this goal will not be easy. Geography imposes fundamental obstacles to growth of regional transit traffic. Even though the Namibia borders the largest economies in the region—Angola and South Africa together account for 80 percent of SADC countries' GDP—vast distances separate Namibia's ports from the centers of economic activity in the region. Furthermore, Namibia's large area and small population mean that the country faces an inherent problem of spreading the costs of maintaining a large road network over few people.

Commercial factors also pose constraints. Due to the small volume of cargo handled by Namibian seaports, relatively few shipping liners make direct calls, meaning that cargo must move through additional ports, with resulting delays and additional costs. Furthermore, most transit cargo moves in one direction: In 2011, transit cargo traveling outbound from Walvis Bay to companies in Angola, Zambia and Zimbabwe outweighed inbound cargo nine to one. Consequently, trucks travel empty in one direction, making it difficult for Namibian service providers to offer competitive shipping rates and expand their business.

Finally, Namibia's transport and logistics sector is made up primarily of small businesses and a handful of medium-sized companies. Many smaller firms lack the managerial capacity, technical skills, and internal differentiation of tasks needed to scale up operations and aggressively compete for regional business.

These factors make Namibia a relatively more costly gateway for the region's international trade, which is reflected clearly in data on truck movements. Truck crossings at Namibian border posts on the Walvis Bay transit corridors average around 20–60 per day, compared to a daily average of 270–350 at crossings along the North-South Corridor linking South Africa to Zambia and the Democratic Republic of Congo.

Walvis Bay is not likely to displace Durban or other major seaports in the near future. It can succeed, however, in carving out a niche market as the partner of choice for moving time-sensitive, high-value, and mission-critical cargo between the region and the world. Even capturing a small slice of the region's business can generate significant payoffs for Namibia, given its small size. Attracting more international transit trade can help Namibia build up a critical mass of service providers, attract new businesses, create spillovers that improve trade facilitation for firms in the rest of the economy.

The Copperbelt region of Zambia and DRC appear to offer the best prospects for sustainable growth in transit trade, especially given growing world demand for metals and minerals. Namibia has already begun to attract some of the copper export business from the mining sector in Zambia, in addition to transporting imports into Zambia, DRC (and increasingly Zimbabwe).

There's no simple script for the country to follow. Many of the actions for moving forward that emerged from research and extensive interviews with both government officials and market participants—not only in Namibia but also at the other end of the corridors in Zambia and South Africa—are steps that the private sector need to take on their own rather than new government policies or public investments.

First, marketing the corridors aggressively and establishing strategic partnerships among shipping lines and firms in the Copperbelt can help to break the vicious cycle where relatively low volumes of cargo handled at Walvis Bay deter shipping lines from making direct calls at the port, which in turn discourages firms from importing or exporting via Walvis Bay, which feeds back on itself and reinforces the problem. Similar aggressive marketing efforts are needed to help balance inbound and outbound traffic, although in this case there is a role for the government in advocating for removal of the third party rule. (This rule prevents a transport operator from moving cargo from one country to another when neither is its home country.) Removal of the third party rule would enable triangular trade—for example, a Namibian trucker would be able to carry cargo to Zimbabwe, pick up a new load for a firm in Zambia, and return with freight from Zambia—thus allowing the operator to make better use of its assets and offer more competitive shipping rates.

Second, the government, private sector, and academia need to work together to enhance the capabilities of people and firms in the logistics sector. This does not mean only better training and professional education—although these are certainly needed for firms to scale up. It also means reducing restrictions on granting expatriate work permits and promoting partnerships with international operators. Skilled and unskilled labor are complements, not substitutes. Having access to skilled personnel increases a firm's demand for unskilled labor, and workers at firms with better management have higher labor productivity than those with the same skills at firms with worse management.

At this time it is difficult to say that the physical infrastructure is a binding constraint on growth of transit trade. As traffic expands, however, there will certainly be greater stress im-

posed on Namibia's transport system. Road maintenance spending averaged over vehicles on the road has been declining in real terms since well before Independence. If this trend is not reversed, Namibia will lose one of its most important assets for becoming a regional logistics hub. Reversing this trend will require careful thinking about how to balance increases in different road user charges with the need for charges to remain competitive. There is considerable talk about modernizing Namibia's deteriorating railroad system and expanding it internationally along the trade corridors. It is argued that trains, not trucks, should be transporting the growing trade in metals and minerals. One must pay careful attention to whether the expected traffic is large enough to justify the investment, however. Even though trucks may be carrying cargo better suited for rail, if rail construction costs are out of alignment with the level of traffic, rail tariffs will be so high that trucks will continue to carry heavy loads of minerals and metals.

Finally, although Namibia outperforms some of its competitors along certain dimensions (e.g., time and security), the country's transport and logistics sector needs to be better than best. It needs to outperform competitors by a large enough margin to convince firms to take the leap of switching their established shipping business to a new port. Furthermore, succeeding in services markets requires continuous improvement to remain competitive in a dynamic and rapidly changing environment.

I. Introduction

1. This is one of a series of three policy notes on growth and employment creation in key sectors of the Namibian economy, namely tourism, transport and logistics, and livestock. These notes are being prepared at the request of the National Planning Commission (NPC) of the Government of the Republic of Namibia (GRN). The notes are intended to contribute to implementation of National Development Plan IV (NDP4), which will guide the government's economic policies from 2012 through 2017.

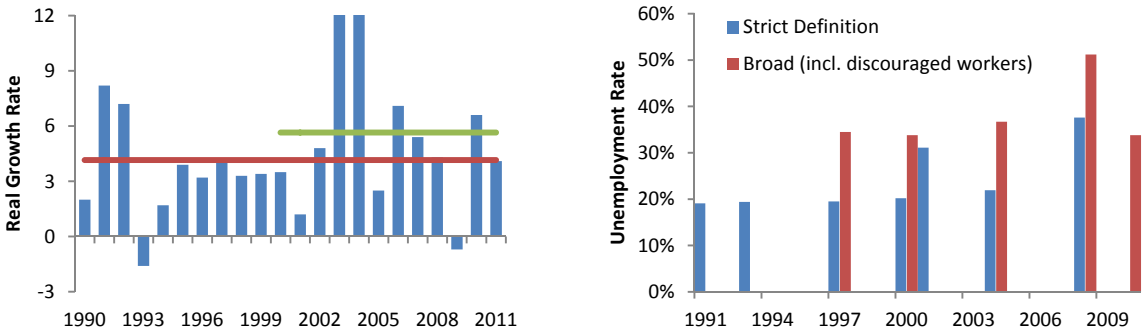
2. This policy note investigates scope for continued growth of Namibia as an international trade gateway for the region, focusing on how to expand traffic along the international transit corridors connecting Namibia's seaports to neighboring and landlocked countries in southern Africa.[1] It is based on research and field interviews conducted in Namibia, South Africa, and Zambia in mid-2011.

3. The study first reviews the background and economic context for a strategy centered on Namibia as a regional transport and logistics hub, examining in particular the implications of the structure of Namibia's production for international trade and transport. The study then assesses the trends in cargo movements at the ports of Walvis Bay and Lüderitz, the rapid growth in traffic along the transit corridors, and opportunities for future growth. The team's research and interviews suggest that, despite past growth, future expansion of traffic along the corridors faces a number of key constraints. The study concludes with a number of suggestions about how the government and private sector can collectively address these constraints.

II. Background and economic context

4. Namibia's history of jobless growth and limited structural economic change provide both the motivation for this policy note and important implications for Namibia as an international trade and transport gateway for the region. Namibia has enjoyed generally favorable macroeconomic conditions since gaining independence in 1990. Real GDP has grown at an average annual rate of 4.2 percent since Independence and at 5.7 per year percent since 2000, as shown in Figure 1. The monetary peg with South Africa has ensured price stability: infla-

Figure 1. A History of Jobless Growth



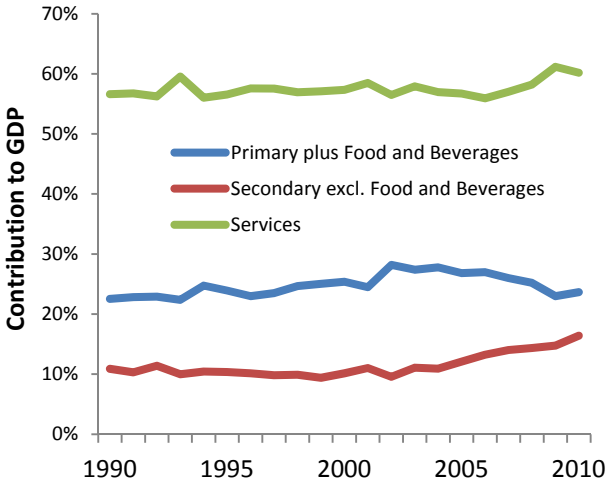
Sources: Central Bureau of Statistics GDP tables, Namibia Labor Force Surveys, Namibia Household Income and Expenditure Surveys

[1] A map depicting the Walvis Bay corridors appears in the appendix on page 26.

tion has usually remained within the band of 3–7 percent during the past decade. Macroeconomic stability has not enabled the Namibian economy to generate jobs, however. The country inherited an unemployment rate of 19 percent (strict definition) at Independence; in the latest (2008) labor force survey, this rate stood at over 37 percent of the labor force, and using the broad definition (which includes discouraged workers) unemployment is 51 percent.

5. Figure 2 reveals that the structure of production has remained relatively unchanged over the past two decades. The Namibian economy is dominated by the services sector, primary commodities, and products derived closely from utilization of the country's natural resource endowment, such as meat, fish products and other processed foods. Within services, wholesale and retail trade, public administration, education, and real estate are the largest contributors to GDP as well as large employers, accounting for 37 percent of both GDP and total recorded employment.[2] The mining sector has historically been the driver of growth in the economy. Namibia is endowed with a range of minerals, most notably diamonds, but also, uranium, zinc, gold, lead, and copper.

Figure 2. Structure of Production, 1990–2010



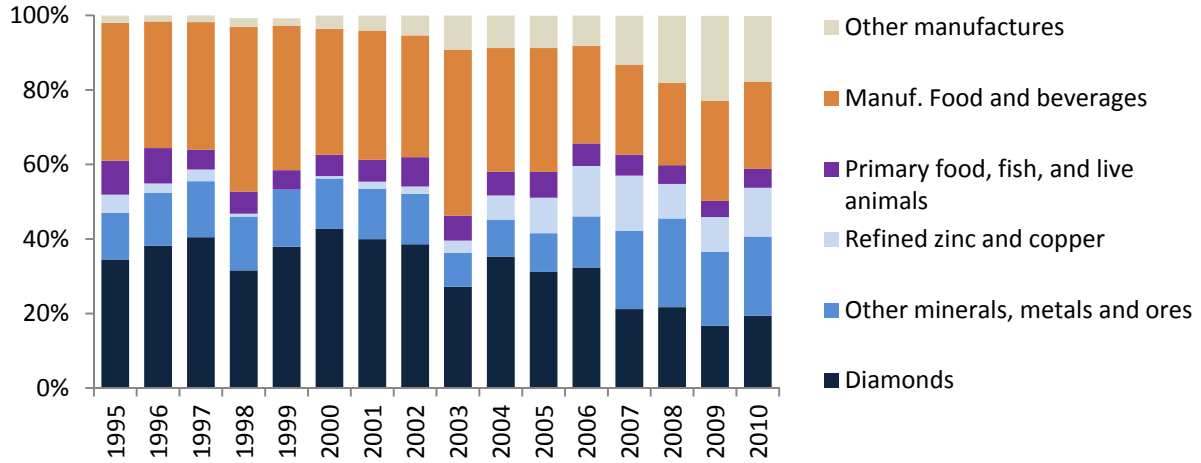
Source: Central Bureau of Statistics, GDP publications

6. There has been little diversification into the higher productivity activities of manufacturing and modern tradable services in Namibia, which have been the springboards for rapid economic growth in other countries. Outside of food processing, Namibia's manufacturing sector has remained relatively small, in terms of both its contribution to total value-added in the economy and employment.[3] According to labor force surveys, the manufacturing sector's share of total employment fell slightly to 6.3 percent in 2008 from 6.5 percent in 1997.[4] Tradable services have been more promising, with financial services and the transport/storage industries growing at an average annual rate of 10–11 percent between 2000 and 2010 (computed from CBS data).

7. This structure of production has implications for international trade and logistics. Namibia's exports and imports have different compositions, and they flow in different directions. Namibia's exports are based on natural resources, primarily involving the mining sector. They have traditionally consisted almost entirely of minerals, metals, agriculture, and processed food and beverages (see Figure 3. Diamonds were historically Namibia's largest export, but recently uranium has taken the lead in the last several years. It is important to note that Namibia's export basket is not particularly well suited to containerized shipping, a point that will be discussed below.

[2] GDP data come from the Central Bureau of Statistics. Employment data are taken from the 2008 Namibia Labor Force Survey.
[3] The uptick in the secondary sector's share of GDP since 2005 shown in Figure 2 above comes from rapid growth in the construction industry.
[4] Namibia Labor Force Surveys, 1997 and 2008.

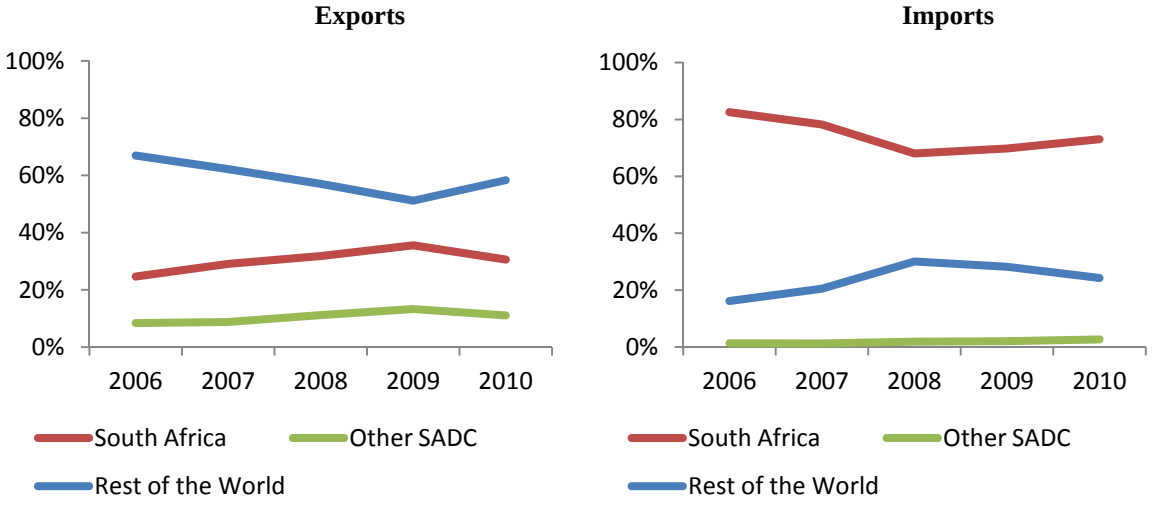
Figure 3. Commodity Composition of Exports, 1995–2010



Source: World Bank staff calculations from trade data provided by Central Bureau of Statistics

8. Exports are destined primarily to industrial countries outside the region and, to a lesser extent, to South Africa (see Figure 4). Namibia exports smaller quantities to SADC countries other than South Africa, but these exports are more diversified: as shown in Table 1, Namibia's exports to non-South Africa SADC occupy more product lines (measured at the heading level of the Harmonised System) and are less concentrated in value terms (measured by the Hirschman concentration index). Total exports were rising steadily until the onset of the global financial crisis, when economic contraction in industrial countries sharply reduced demand for Namibia's mineral exports.

Figure 4. Direction of Trade, 2006–2010



Source: World Bank staff calculations from commodity trade data provided by Central Bureau of Statistics

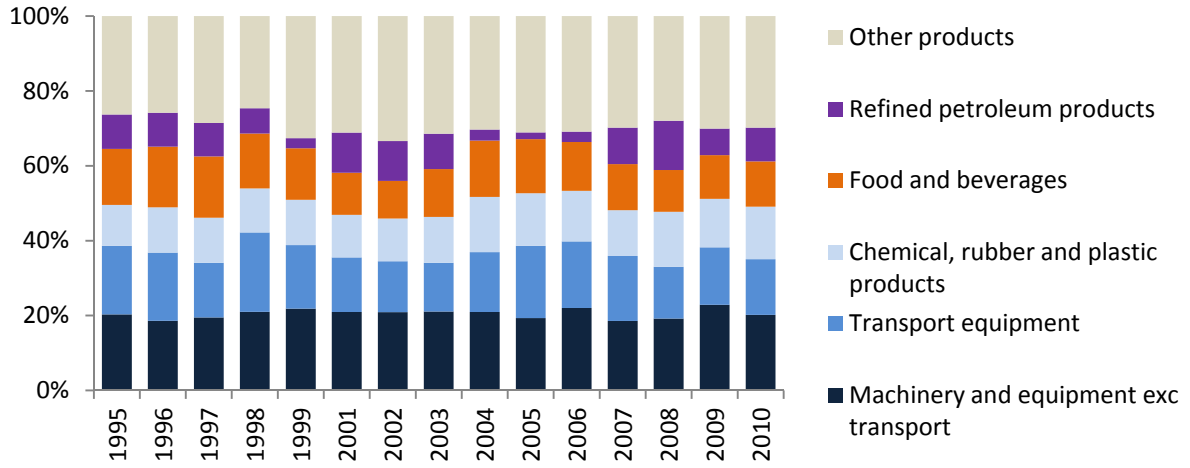
Table 1. Extent of Trade Concentration and Diversification, 2006–2010

		South Africa	Other SADC	Rest of the World
Imports	*Number of HS Headings*	1,148	597	906
	Share of Potentially Tradable Lines	92%	48%	73%
	Hirschman Concentration Index	0.13	0.34	0.23
Exports	*Number of HS Headings*	900	945	673
	Share of Potentially Tradable Lines	72%	76%	54%
	Hirschman Concentration Index	0.45	0.20	0.44

Source: World Bank staff calculations from 2006–2010 commodity trade data provided by Central Bureau of Statistics.
Notes: The 2002 Harmonised System contains 1,244 4-digit headings. The Hirschman concentration index takes a value of 1 if all trade is concentrated in one product and tends toward 0 if trade is equally distributed across all product lines in the classification system.

9. Imports are more diversified in composition but more concentrated in direction. Machinery and equipment (including motor vehicles) account for just under 40 percent of total imports (see Figure 5. It is worth noting that there is intra-industry trade in food, reflecting factors such as climate and seasonality, but also comparative advantage: Namibia exports high-quality meat to Europe and imports less expensive varieties from South Africa, Brazil and other countries. Imports come overwhelming from South Africa. With the reopening of Namibia Customs Smelters, the country has begun exporting blister copper that is refined from imported copper concentrate. In recent years, Namibia has imported 70–80 percent of its imports from South Africa, as was shown earlier. Imports from outside the region are distributed widely across 92 percent of available product lines (Table 1). Imports from SADC countries are somewhat surprisingly less diversified than exports to SADC.

Figure 5. Commodity Composition of Imports, 1995–2010



Source: Central Bureau of Statistics, GDP publications

10. To foreshadow a topic that will be discussed in greater detail in the context of transit trade, it is worth noting here that Namibia's own trade with SADC countries with SADC countries other than South Africa moves in the same direction as traffic along the Walvis Bay transit corridors. Outbound traffic from Namibia to neighboring countries greatly outweighs

inbound traffic. This has important implications for pricing transport services, since trucks leave Namibia full and return empty.

11. *Summary:* To shift the economy onto a trajectory of more rapid, job-creating growth, Namibia will need to pursue a strategy of diversifying the economy into higher productivity activities, such as manufacturing and modern tradable services. Building a trade logistics hub can be one element of this strategy. The size and current structure of the economy alone will not attract large investments in transport and logistics. For this, Namibia must exploit opportunities to expand international transit trade. The paper now turns to an assessment of the country's success in this area and future opportunities.

III. Namibia's recent record and future opportunities

12. In recent years Namibia has developed a small but growing transit trade and transshipment business, building on its good quality transportation infrastructure, efficient logistics services and customs administration, and the country's relative proximity to growing economies in southern Africa. The Namibian land transport infrastructure comprises a well-developed and well-maintained road network of some 65,000 km, of which about 5,500 km are high quality bitumen-surfaced roads, and 2,400 km of rail tracks connected to the South African rail system (Runji 2003).

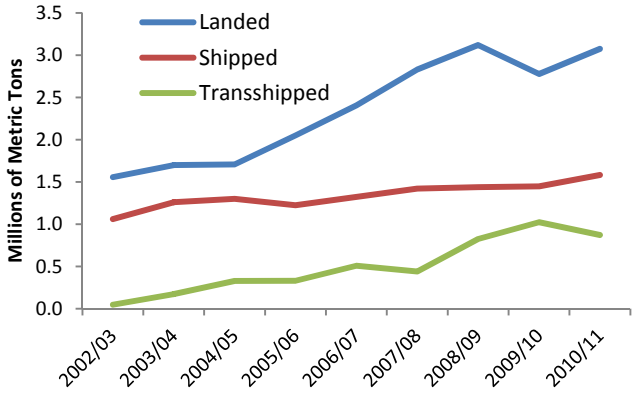
13. A network of international transport corridors originates from the two main ports in the country, mainly the port of Walvis Bay and to a much smaller extent the port of Lüderitz near the South African border, linking them to countries throughout southern Africa.[5] The Walvis Bay Corridor Group (WBCG), a public-private partnership, coordinates institutional arrangements along these corridors. This section of the policy note analyzes trends in and causes of growth of traffic along these corridors and assess opportunities for further expansion.

Trends in port and corridor traffic

Port traffic

14. Cargo processed at Namibian ports has grown by 9.6 percent annually over the past six years: to 5.5 million tons in 2010/11 from 2.7 million tons in 2002/03.[6] As shown in Figure 6, inbound cargo makes up the largest component of cargo handled at the ports, and this has been growing, reflecting both the growth of the Namibian economy and the expansion of traffic along the transit corridors to other countries in the region. Transshipments—i.e., movement of cargo from one ship to another in the port rather than being transported by

Figure 6. Cargo Handled at Namibian Ports, 2002/03–2010/11



Source: Namport annual reports
Notes: Volumes measured in millions of metric tons; fiscal year runs September to August

[5] A map showing the ports and corridors is printed in the appendix on page 26.
[6] Details on the volume and composition of cargo handled by Namibia's ports are presented in Table 12 on page 21 in the data appendix

land—have been growing even more rapidly, at an average annual rate of 44 percent, with implications that will be discussed below. Growth in export tonnage has been modest: 5 percent per year on average since 2002/03.

15. **Walvis Bay** is the larger of the two ports, with a capacity to handle more than 8 million tons of cargo annually. The port comprises the commercial harbor, managed by Namport, and the fishing harbor, which is owned by the fishing industry. The commercial harbor offers a range of terminal facilities with eight berths handling bulk, containerized, frozen and dry cargo. It also benefits from modern equipment which includes reach-stackers, forklifts, tractors, haulers, trailers, harbor tower cranes and mobile cranes. Namport has launched the process of expanding the container terminal. There is also considerable interest among industrialists in building chemical processing facilities near Walvis Bay to support Namibia's mining sector, which would also involve add

Table 2. Types of Cargo Handled at Walvis Bay, 2010/11

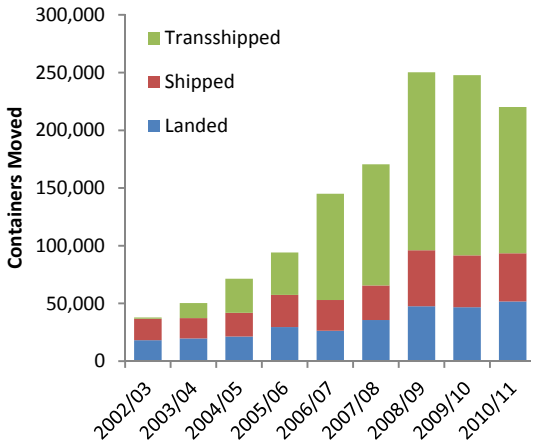
Cargo Type	Landed	Shipped	Transshipped	Total
Containerized	769,374	461,376	867,820	2,098,570
Liquid bulk handled by pipeline	1,324,094	44,568	0	1,368,661
Dry bulk handled by appliances	0	703,633	0	703,633
Breakbulk	484,482	162,663	4,066	651,211
Dry bulk handled by cranes	368,361	0	0	368,361
Total cargo handled	**2,946,311**	**1,372,240**	**871,886**	**5,190,437**

Source: Namport annual reports
Notes: Data in metric tons; fiscal year runs September through August

16. The volume of cargo moved through Walvis Bay has been increasing at an average annual rate of 10 percent during the past nine years, with a slight downturn in 2008–2010 due to the global economic crisis. As a consequence of the structure of production and trade in Namibia (discussed earlier), the port handles predominantly bulk cargo: 60 percent of total tonnage handled is bulk; excluding transshipments, this figure rises to 72 percent (see Table 2). Petroleum, salt, mineral ores, coal, cement, sulfuric acid for the mining industry, among others. Less than 1 percent of total export tonnage is general cargo.[7]

17. Transshipment of containers has been growing rapidly at Walvis Bay, as shown in Figure 7. A decade ago, transshipments represented less than three percent of total container movements at Walvis Bay. They now account for around 60 percent. Although the transshipment business provides an important source of revenue for the port, it can be quite volatile as shipping companies quickly switch their business from one port to another in response to changing circumstances, e.g., changes in the extent of congestion, draft improvements in ports served by feeder services, handling charges, political instability, etc.

Figure 7. Container Movements at Walvis Bay, 2002/03–2010/11



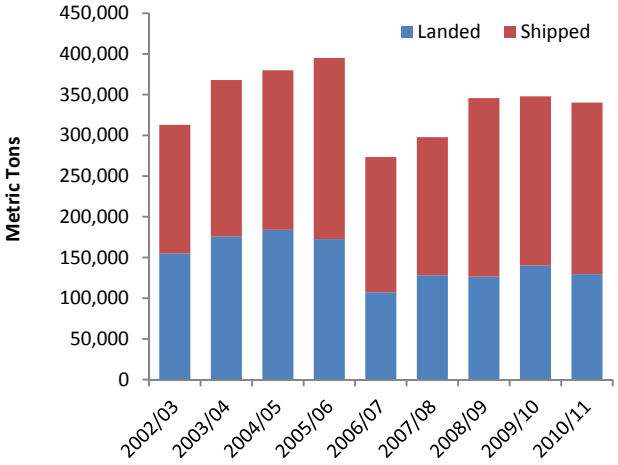
Source: Namport annual reports
Notes: The financial year is September–August

[7] Detailed data on commodities moved through Walvis Bay are presented in Table 13 in the appendix (page 22).

18. **Lüderitz** handles a much smaller volume of cargo than Walvis Bay: 340 thousand tons in 2010/11 versus 5.2 million tons at Walvis Bay. The port depends heavily on zinc mining—in 2010/11, zinc exports and sulfur imports accounted for two-thirds of total tonnage—followed by fishing. The port is essentially unused by other sectors of the economy or for transit trade.

19. Traffic at Lüderitz has been stagnant over the past decade. Volumes declined by 31 percent in 2006/07 and have not yet returned to 2003–2006 levels (see Figure 8. The Skorpion Zinc mine is expected to run out of mineable ore and close production in the next 3–6 years, which will further depress port volumes.[8]

Figure 8. Port of Lüderitz Volumes, 2002/03–2010/11

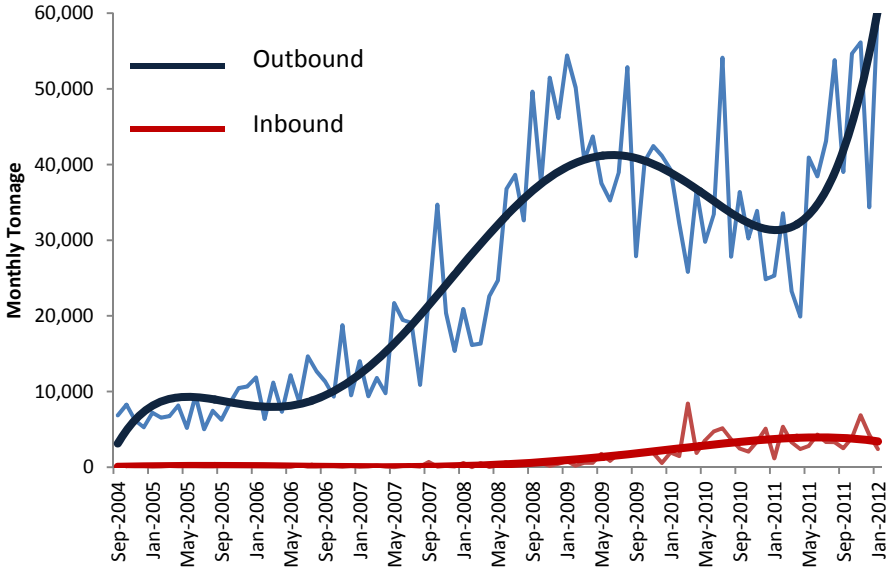


Source: Namport annual reports
Notes: Transshipments are negligible

Land traffic along the corridors

20. The volume of goods moved along the Walvis Bay Corridors grew at an annual average rate of 33 percent between 2005 and 2011.[9] Flows declined sharply in 2010, but rebounded in 2011, and monthly levels in late 2011 had, quite remarkably, surpassed the highest levels enjoyed in 2009 (see Figure 9).

Figure 9. Direction of Traffic along Walvis Bay Corridors, Sept. 2004–Jan. 2012



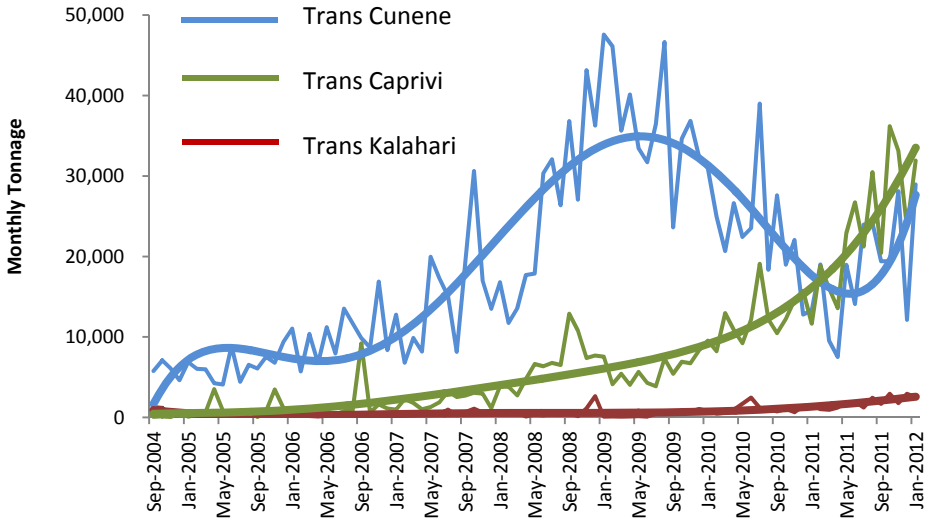
Source: Walvis Bay Corridor Group data

21. Traffic along the Trans-Cunene Corridor (to Angola) dominated total growth through 2009. Angola traffic grew by 55 percent per year from 2005 and 2009 (and by 78 percent in

[8] *The Namibian* (October 28, 2011), *New Era* (March 9, 2012).
[99] See Table 15 for annual traffic by country for 2005 through 2011.

2008 alone). Motor vehicles were initially the most important commodity moved to Angola (and were 29 percent of the value of all Angola transit trade in 2010), followed by machinery, food and tobacco (Table 16 on page 30 in the appendix presents a detailed breakdown). Over time a number of warehouse and wholesale operations were established at the border in Oshikango to intermediate some of the transit trade. Angola retailers come to Oshikango to procure a wide variety of products that includes furniture, household appliances, consumer electronics, and cosmetics.

Figure 10. Walvis Bay Corridors Trends, Sept. 2004–Jan. 2012

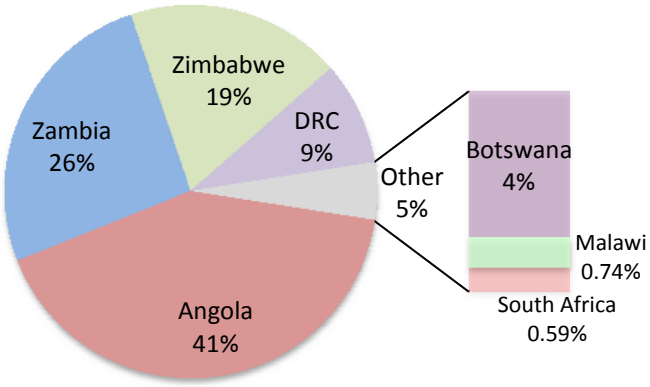


Source: Walvis Bay Corridor Group data

22. The rapid expansion of transit trade to Angola can be explained in part as successful exploitation by Namibian firms of temporary conditions: Post-war reconstruction and rapid income growth in the presence of weak transportation infrastructure made Walvis Bay and the Trans-Cunene Corridor an attractive alternative to Angolan ports for importing goods into Angola. This opportunity for arbitrage will naturally diminish over time as the transport infrastructure in Angola improves. On the other hand, other commercial advantages to using the Trans-Cunene Corridor should persist for a longer period of time. Wholesalers in Oshikango believe it may take a decade or more for the business environment in Angola to match Namibian conditions, and this gap will continue to provide commercial opportunities. By virtue of the large size of the Angolan economy (16 percent of combined SADC GDP in 2010) and its proximity to Namibia, there will likely be some long-term demand for imports that potentially can be moved more cheaply through Walvis Bay. It should be noted that Angolan politics also explains some of the ebb and flow of traffic along the Trans-Cunene Corridor. In response to global economic conditions, the Angolan government instituted strict controls on U.S. dollar holdings, thus curtailing the border trade in Oshikango, much of which is conducted in U.S. dollars. In 2010 the Angolan government banned the import of used vehicles more than three years old. A conclusion that one draws from the Angola experience is that Namibian firms have the capacity to respond to new transport, logistics and distribution opportunities, but that the transit trade business is very susceptible to adverse economic and political changes.

23. Although Angola is still the largest partner country, accounting for 41 percent of total traffic in 2011 (see Figure 11), traffic along the Trans-Caprivi Corridor (with Zambia, DRC and, increasingly, Zimbabwe) has began to eclipse that along the Trans-Cunene Corridor in December 2010. Tonnage moved along the Trans-Caprivi Corridor has grown even more rapidly, increasing by 99 percent annually since 2009—a growth rate even greater than what was experienced with Angola transit trade at its peak. As with the Angola trade, motor vehicles represent a large share of the outbound movement from Walvis Bay. Chemicals, paper, machinery and other industrial products are also important, however.

Figure 11. Share of Traffic by Country, 2011



Source: Walvis Bay Corridor Group data
Notes: Traffic is sum of inbound and outbound

24. Perhaps the most interesting development on Trans-Caprivi Corridor is that countries have begun using Walvis Bay for their exports, not just their imports. Zambian mines are shipping a share of their copper through Walvis Bay. Good security in Namibia eliminates the need to provide trucks with armed escorts, in contrast to alternative road transport routes. Malawi and Zimbabwe are also shipping a small amount of their exports through Walvis Bay. (Data are shown Table 15 on page 29 in the appendix.) Nevertheless, countries' imports through Walvis Bay were over ten times greater in 2011 than their exports along the corridors, and the gap between outbound and inbound traffic appears to be growing wider, as was depicted in Figure 9 above. This traffic imbalance makes the Walvis Bay corridors less competitive and creates one of the biggest challenges that Namibia will need to overcome if it is to become a regional logistics center.

25. Growth in traffic along the corridors has been impressive, rising by an average of 33 percent per year since 2005, as noted earlier, even taking into account the shock in 2009–10 caused by the global financial crisis. This is growth from a small base, however. One should keep in mind that the port and city of Walvis Bay were not part of Namibia until four years after Independence. In addition, traffic remains much lighter crossing Namibian borders than elsewhere in the region. Table 3 reveals that average daily truck traffic at Walvis Bay corridor border posts in 2009/10 was a fraction of that moving along the North-South Corridor, which connects DRC, Zambia and Zimbabwe to South Africa's seaports.

Table 3. Traffic at Border Crossings, 2009/10

Corridor	Border Crossing	Daily Truck Traffic
Trans Caprivi	Katima Mulilo	20–25
Trans Cunene	Oshikango	50
Trans Kalahari	Mamuno	60
North-South Corridor		
South Africa/Zimbabwe	Beitbridge	287
Zimbabwe/Zambia	Chirundu	270
Zambia/DRC	Kasumbalesa	350

Source: JICA 2010

Sources of success

26. What explains the Namibia's success to date in positioning itself as a regional gateway for international trade? As noted earlier, part of the growth in 2006–2008 was driven by successful exploitation of transitory opportunities in Angola. Several other factors have also contributed.

27. Namibia's transportation infrastructure is one important source of Namibia's advantage as a gateway for SADC countries' international trade. In the World Bank's latest Logistics Performance Indicators, a global survey of freight forwarders, Namibia's trade and transport infrastructure ranked among the best in SADC (see Table 4). The port of Walvis Bay has no delays in ship schedule and cargo handling, unlike most other ports in southern and western Africa, due to smooth berthing when loading and unloading cargo from the vessels (JICA 2010). The main value-added that Walvis Bay can propose to shippers and shipping lines is reliability, streamlined clearance processes, competitive port rates, short waiting times and no congestion.[10] The country offers good-quality national roads that link the port to neighboring countries and allow trucks to move cargo quickly and reliably.

Table 4. Logistics Performance Indicators for SADC Countries, 2012

	Efficiency of Customs and Border Agencies		Quality of Trade and Transport Infrastructure		Competence and Quality of Logistics Services	
Country	**Rank**	**Score**	**Rank**	**Score**	**Rank**	**Score**
Angola	101	2.33	92	2.48	149	2.00
Botswana	48	2.82	60	2.82	74	2.74
D.R. Congo	133	2.10	144	1.96	138	2.17
Lesotho	143	2.00	132	2.13	112	2.42
Malawi	77	2.51	64	2.78	60	2.85
Namibia	*54*	*2.73*	*69*	*2.75*	*88*	*2.65*
South Africa	26	3.35	19	3.75	24	3.56
Tanzania	130	2.17	105	2.41	94	2.64
Zimbabwe	105	2.31	127	2.20	127	2.27

Source: World Bank, Logistics Performance Indictors 2012
Notes: 155 countries are included in the ranking; respondents to the survey rate countries from 1 ("very low") to 5 ("very high") along several dimensions important for trade facilitation

28. Safety is a second source of comparative advantage. Theft and damages (and countermeasures to prevent them) can increase the real costs of transport to the point where a safe, reliable route has a comparative cost advantage over others, certainly in the case of valuable cargo. For example, trucks carrying copper have never been hijacked and do not need to travel with armed escorts, unlike in other countries in the region.

29. Namibia is seen as having efficient customs procedures by regional standards (Table 4). Namibia's membership in SACU and the harmonization of procedures within the customs union add to the appeal for firms in SACU countries of using the Trans-Kalahari Corridor.[11] For firms in the Zambia and DRC, using the Trans-Caprivi Corridor instead of routing traffic has the advantage of one fewer border to cross. Firms in the Copperbelt reported to the team

[10] Two days are indicated for Walvis Bay to Johannesburg, 4–5 days to the Copperbelt by the Walvis Bay Corridor Group.
[11] A discussion of the contribution made by common rules within a customs union to effective corridor management can be found in John Arnold, "Best Practices in Management of International Trade Corridors," Transport Papers TP-13, Washington: World Bank, September 2006.

that they also found Namibia's bond system to be more advantageous than the system on the Durban route.

30. The role of the Walvis Bay Corridor Group (WBCG) in facilitating streamlined procedures along the corridors as well as promoting the corridors to potential private sector users should also be mentioned. WBCG is managed as a public-private partnership (PPP) set-up of transport and logistics stakeholders from both the public and private sectors. The partnership allows for the pooling of resources, expertise and authorities from both the regulators and the operators, who together form an integrated transport and logistics service for potential customers. In this regard, the WBCG and other public stakeholders ensure that reliable, safe, well-organized, fast transport services are provided along its corridors.

Opportunities for future growth

Transit trade

31. Namibia's proximity to large or fast-growing markets provides some grounds for optimism about continued growth in transit trade along the Walvis Bay corridors. Namibia borders the two largest economies in SADC: Angola and South Africa, which together account for 82 percent of continental SADC GDP (see Table 5). The transit corridors connect Namibia's ports to some of the fastest-growing SADC members: Angola, Zambia, and DRC. Even though landlocked countries in the region will probably move the bulk of their cargo through South African, Tanzanian or other ports, securing even small shares of these countries' international transport traffic would add up to significant business for Namibia.

Table 5. Continental SADC Members' GDP, 2010

	GNI per capita, 2010	Total GDP, 2010 (billions)	Share of SADC GDP, 2010	Average GDP growth, 2005–2010
Angola	$3,940	$84.39	15.5%	11.6%
Botswana	$6,790	$14.86	2.7%	2.9%
Democratic Republic of Congo	$180	$13.15	2.4%	5.5%
Lesotho	$1,040	$2.13	0.4%	4.0%
Malawi	$330	$5.11	0.9%	7.4%
Namibia	*$4,500*	*$12.17*	*2.2%*	*4.1%*
South Africa	$6,090	$363.70	66.6%	3.1%
Swaziland	$2,630	$3.65	0.7%	2.1%
Tanzania	$530	$23.06	4.2%	6.9%
Zambia	$1,070	$16.19	3.0%	6.4%
Zimbabwe	$460	$7.47	1.4%	-1.6%

Source: World Development Indicators
Notes: Island SADC members are excluded; shares of SADC GDP are based on current U.S. dollar GDP; growth rates are based on GDP measured in constant local currency units

32. The expansion of mining activities in the DRC and Zambia arguably offers Namibia the greatest potential for long-term growth of international transit trade. Both countries are well-position to meet the growing global demand for copper. Interviews conducted by the team in the Copperbelt area of Zambia suggest that firms active the mining industry see Walvis Bay as a commercially viable alternative to Durban and Dar es Salaam for high-value and time-sensitive cargo (e.g., copper for exports; machinery and chemicals for import), particularly for trade with Europe and North America. Some business is also emerging in industrial products outside the mining industry (e.g., imports of paper rolls from Europe through Walvis

Bay). Firms surveyed by the team reported that they would be willing to switch some of their traffic to Walvis Bay if long-term contracts can be signed on favorable terms.

33. Some engaged in transport, logistics, and distribution services are optimistic that economic conditions in Zimbabwe are returning to a state where industrial activity will take off. The volume of cargo moving to Zimbabwe from Walvis Bay quadrupled in 2010 and then quadrupled again in 2011 (see Table 15 on page 29 in the appendix). Other ports lie closer to Zimbabwe, so the potential for Namibia to capture a slice of the market depends in part on the relative ease or difficulty of moving goods through land border crossings at Beitbridge or Pioneers Gate to competing seaports.

34. There are some prospects, albeit still somewhat uncertain, for rail traffic along a trans-Kalahari railroad (TKRR). The governments of Botswana and Namibia have been exploring rail routes to export coal from Mmamabula to world markets through the port of Walvis Bay. A pre-feasibility study found most routing options have a negative rate of return. For the one route deemed commercially viable, however, the study suggests that a TKRR could potentially attract business from agricultural and tourism businesses (e.g., to transport fertilizer), although coal would probably dominate traffic on the TKRR (CSPC 2011).

Transshipment and port services

35. The container transshipment business at Walvis Bay has grown rapidly during the past decade, as was discussed earlier. Although this represents a source of future business, one must take care not to become too dependent on it. Container transshipment requires having ready access to large areas of the port, sophisticated handling equipment and high labor productivity, competing with other uses of these assets, while at the same time facing constant pressure from shipping companies to get better rates with the threat that they will move elsewhere.

36. Increased traffic along the transit corridors will expand port volumes, making Walvis Bay potentially more attractive for providing services such as ship and rig repairs, in addition to the regular business of moving cargo in and out of Namibia. These operations would generate demand for workers, particularly skilled labor, although of a scale smaller than that of shipping and cargo.[12] The port's proximity to shipping routes and to the increasingly developed oil and gas fields along the western coast of Africa, combined with Namibia's generally more conducive political and economic climate than those of many countries in West Africa, give Walvis Bay an advantage in attracting service providers. The ship repair business at Walvis Bay has been growing. For example, Rolls Royce opened a repair and overhaul workshop at Walvis Bay in 2011 to service equipment on vessels operating along the West Africa coast (*The Namibian*, April 26, 2011).

In the future: distribution and assembly

37. Namibia could become a regional center for distribution by setting up facilities for packaging, order fulfillment, billing, spare parts, and servicing/warranty repairs. Attracting large logistics operators with experience managing many segments of supply chains is one prerequisite for success. Building on this, in the longer term the coastal region of Namibia could become attractive for locating assembly operations.

[12] Research at other ports finds that shipping and cargo-handling activities generate more employment than other port services. See World Bank (2005) for Djibouti and Notteboom (2010) for European ports.

38. For the time being, the market of goods transiting from and to land-locked countries, although in constant progress, has not reached the level to trigger large logistics activities for transforming Namibia into a logistics hub. Once sufficient volume is reached (usually over 10–15 million tons for a port—significantly greater than the 5.5 million tons handled at Walvis Bay last financial year), competitiveness between service providers is increased and leads to higher productivity and better prices, which are attractive for more clients. A virtuous cycle is thus started in motion, the sector generating activities for itself.

IV. Constraints to overcome

39. Although Namibia has succeeded in stimulating rapid growth in corridor traffic through Walvis Bay, it faces a number of constraints in developing itself as a larger gateway for the region's international trade. Major constraints stem first from geographic factors, but additionally include problems of traffic imbalances along the corridors, lack of direct liner calls at Walvis Bay, and the industrial organizations of the Namibian logistics sector. Taken together, they raise costs for firms choosing to move their goods through Namibia.

Geography

40. The first major constraint is a fact of geography. Namibia is far away and places within the country are far apart. Even though the country borders large and rapidly growing economies, as discussed above, one must acknowledge that Namibia's ports and cities are not located close to the major economic centers in southern Africa. Long distances between Walvis Bay and its potential users raise land transport costs and make it difficult to scale up operations. The map presented in Figure 12 shows that the high-volume road traffic moves mainly along the North-South Corridor between the region's concentrations of economic activity in Gauteng, the Copperbelt in Zambia and DRC, and Zimbabwe. Namibia's seaports do not enjoy large captive markets, as does the port of Durban with the economic centers in Gauteng and KwaZulu-Natal provinces. The absence of such a hinterland makes it harder for the port of Walvis Bay to achieve economies of scale and scope by servicing the domestic economy alone.

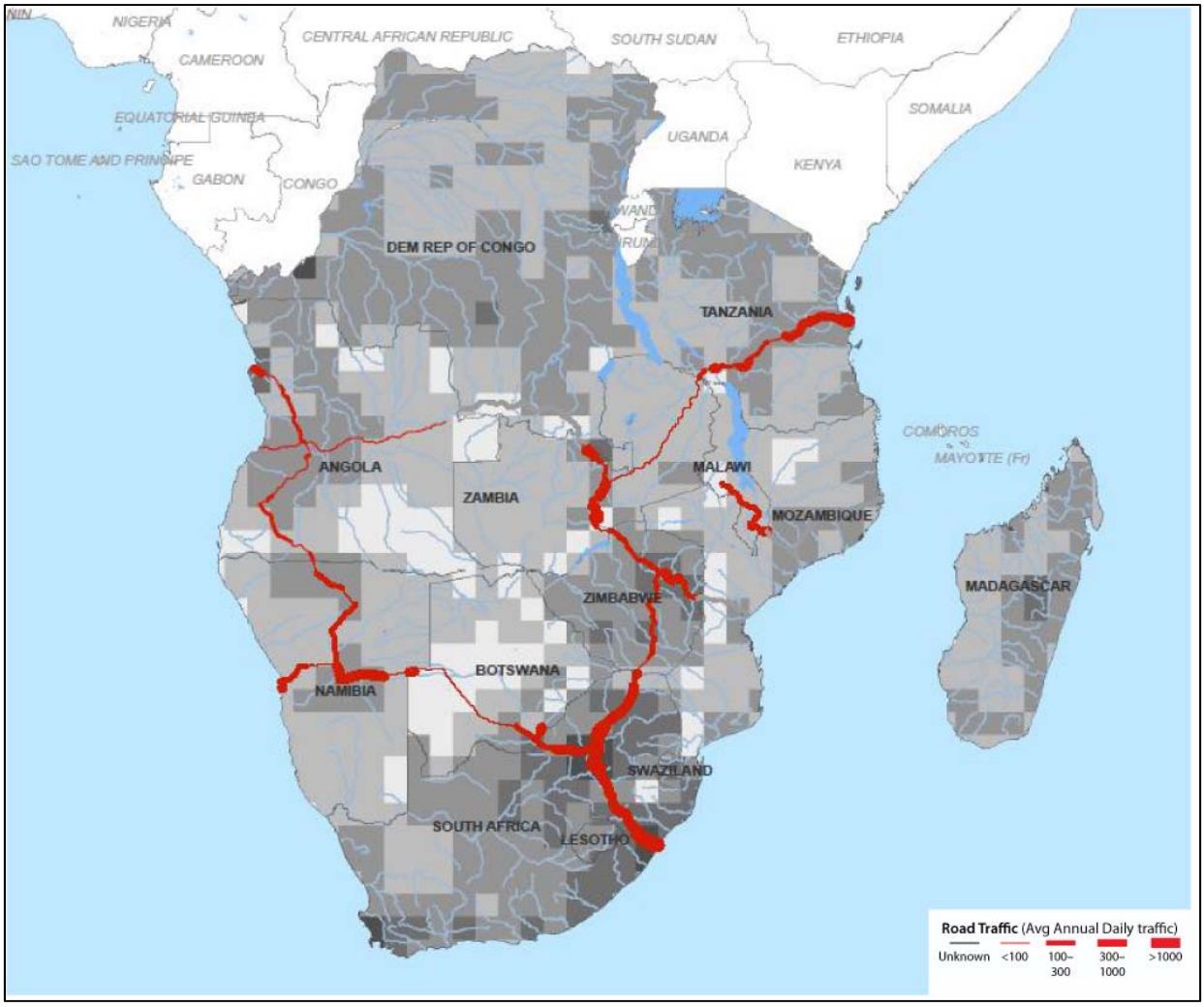
41. The port of Walvis Bay is more distant than its principal competitors from markets served by the corridors. Durban has a distance advantage in serving Gauteng and Ndola in the Copperbelt; Dar es Salaam is closer to Ndola and Lubumbashi (see Table 6). Namibia has a distance advantage over South African ports only in serving the Angolan market. For traffic with trade partners on the Atlantic Ocean (Europe, the Americas, West Africa), it is true that the shorter time spent at sea (and in ports with longer dwell times than at Walvis Bay) can compensate to some extent for the longer land distances. As southern Africa increases its trade with Asia, the same calculus works against Namibia, however.

Table 6. Comparison of Distances from Ports to Key Markets

Distance from	to Ndola	to Lubumbashi	to Johannesburg	to Lubango
Walvis Bay	2,450 km	2,700 km	1,800 km	1,350 km
Cape Town				2,650 km
Dar es Salaam	1,800 km	2,100 km		
Durban	2,350 km	2,600 km	600 km	

Sources: COMESA, Walvis Bay Corridor Group

Figure 12. Road Traffic Volumes and Economic Activity in Southern Africa



Source: Ranganathan and Foster (2011), using 2008 AICD data
Notes: Shades in background show GDP per 100 square kilometers on grey scale

42. In addition to distance from other markets, Namibia's large size and low population density make it more costly to build and maintain a large road network compared to countries where these costs can be spread over more people or more economic activity. Although Namibia enjoys high shares of paved roads in good or fair condition (93 percent, versus 80 percent in South Africa and 84 percent in Mozambique, for example), the country unfortunately stands out in the region for having a large road network for a small population (see Table 7 below). Its density relative to population of 22 kilometers of road per thousand people is more than five times that of South Africa's.[13] Density relative to land area is small. Namibia's costs of road construction and maintenance need to be carried by fewer people and goods than its principal competitors, South Africa and Tanzania.

43. If international traffic continues to rise as expected, the resulting heavy loading of Namibia's corridor network road infrastructure is likely to increase the rate of pavement deterioration and decrease riding quality.[14] This sets in motion a vicious cycle where pavement deterioration increases vehicle vibration, which increases the dynamic component of vehicle

[13] Road coverage relative to population in Namibia is twice that of Europe and Central Asia, and it approaches the coverage of North America (just under 25 km per 1,000 people). See Gwilliam et al. (2008).
[14] Severe flooding during the past several years has also exacted its toll on Namibia's road infrastructure.

Table 7. Usage of Road Networks in SADC

	Lesotho	Malawi	Mozam-bique	*Namibia*	South Africa	Tanzania	Zambia
Road network length (km)	5,299	13,283	29,238	*45,094*	202,264	48,730	18,285
Road density, per land area (km/1000 sq km)	175	141	37	*55*	167	55	25
Road density, per population (km/1000 persons)	3.0	1.0	1.5	*22.0*	4.3	1.2	1.5
Usage: Freight-km,(million ton-km/year)	2,068	1,497	4,236	*5,949*	158,175	8,427	3,676
Usage: Passenger-km, (million pass-km/year)	5,072	3,806	10,674	*14,807*	383,141	21,005	9,128
Share of paved roads in							
good condition	23	47	51	*57*	61	70	47
fair condition	42	39	33	*36*	19	25	14
poor condition	35	15	16	*7*	20	5	38

Source: AICD Infrastructure Database
Note: Data on classified road networks in 2008

loads on the road, which causes even faster deterioration of the pavement for the same amount of cargo (CSIR 2008). It is imperative for Namibia to maintain transit corridor roads to high quality standards if it is to avoid losing transit business to competitors.

44. Spending on road maintenance since even before Independence has not kept pace with demand, however. Real road maintenance expenditures per vehicle fell from N$4,500/vehicle in 1980 to around N$1,500/vehicle in the late 2000s. Total spending on road maintenance has been stagnant in real terms from 1981 to 2008 (Bruzelius 2009).

45. Aware of these issues, the GRN launched road sector reforms in 2001 that created several parastatals (the Roads Authority, Road Fund Administration, and Roads Contractor Company and transferred to them from the Ministry of Works, Transport and Communications the responsibility for managing, financing, and maintaining the roads. The reforms established system of road user charges based on the "user pays" principle: the road user charges to be imposed on users are set using cost-recovery instruments comprising fuel levies, registration and annual license fees, abnormal vehicle fees, and cross-border fees. A mass-distance charge was introduced in 2006, although this has faced implementation difficulties that have undermined the measure's ability to allocate charges to vehicles imposing the greatest costs on road conditions.[15] Despite these reforms, the new system of road user charges has been able to generate only around 55 percent of funding needs (Bruzelius 2009). The balance has been covered by the State Revenue Fund.

Liner connectivity and direct calls

46. To compete with other international gateways, Namibia needs to offer firms in the region better connectivity to services provided by global liner shipping: In particular they need to make more direct calls by container vessels loaded with cargo from Asian producers (the main suppliers of goods imported by landlocked countries in the region) and also vessels to carry minerals, metals, and other exports from these countries. Direct calls reduce total time needed to transport goods from seller to buyer.

[15] The initial system of mass-distance charges lost a court challenge and had to be shelved. A revised system was introduced in 2010. The measure is based on self-declaration of distance travelled by owners of heavy vehicles, reportedly making it easy to evade.

47. How well connected are Namibian ports compared to those in other SADC countries? Not surprisingly, South Africa leads the SADC region in terms of connectivity to global liner shipping (Table 8). Namibia has improved its connectivity to the point where it is competitive with Angola, Mozambique and Tanzania. Like Namibia, these countries are trying to attract the business of firms in landlocked countries. Namibia will need to continue to aggressively court shipping lines to serve its ports if it is to compete with other ports in the region.

Table 8. Liner Shipping Connectivity: Namibia versus Competitors

	Index		Rank	
Country	**2004**	**2011**	**2004**	**2011**
Angola	9.7	11.3	76	81
Mozambique	6.6	10.1	99	85
Namibia	*6.3*	*12.0*	*102*	*75*
South Africa	23.1	32.5	32	30
Tanzania	8.1	11.5	90	78

Source: UNCTAD Liner Shipping Connectivity Index, 2011
Note: The Liner Shipping Connectivity Index is generated from five components: (a) the number of ships; (b) the total container carrying capacity of those ships; (c) the maximum vessel size; (d) the number of services; and (e) the number of companies that deploy container ships on services to and from a country's ports.

Traffic imbalances

48. Private operators (freight forwarders and importers) in Zambia and South Africa interviewed by the team to have a good perception of the port of Walvis Bay and of Namibian corridors in general. Infrastructure and administrative procedures are not considered as constraints for a shift. They mainly complain about economic constraints, such as traffic imbalance, which makes one leg to/from Namibia more expensive than the existing routes.

49. Table 9 shows the stark imbalance of traffic: apart from traffic with South Africa, cargo moves overwhelming out from Walvis Bay to neighboring countries. Even though the volume of inbound cargo from Zambia has been increasing, this amounts to only 30 percent of its total traffic with the port. Many trucks move empty one direction, with the consequence that a shipper must pay the cost of moving the truck in both directions. Balancing import and export movements and tonnages would make efficient use of the transport fleet and enable the transporters to propose attractive rates.[16] Unfortunately, Namibia's own imports and exports with SADC follows the same pattern. Recall from Figure 4 on page 3 that Namibia buys only 3 percent of its imports from SADC countries other than South Africa while 11 percent of its exports go to those countries.

Table 9. Traffic Imbalances, 2011

	Outbound cargo's share of traffic
Angola	100%
Botswana	98%
DRC	100%
Malawi	61%
South Africa	38%
Zambia	70%
Zimbabwe	99%

Source: Walvis Bay Corridor Group data

Industry scale and capacity

50. Namibia's transport and logistics industry operates at a small scale by regional standards. The industry is characterized by mostly small businesses (if not micro-enterprises) with a handful of medium-sized companies. Based on interviews with industry participants, there is a small pool of skilled personnel in Namibia who have formal training in competencies used in modern transport and logistics operations (e.g., carrier management, supply chain strategy, network design, purchasing, tendering, procurement, etc.). Consequently most firms

[16] Traffic imbalances are by no means unique to Namibia's transit trade. There is a large imbalance in shipping, especially containerized shipping, between China and the U.S., for example.

lack the capability for internal differentiation of tasks required to scale up their operations and aggressively compete for the SADC region's business.

Result: Namibia is a high-cost competitor

51. These factors result in Namibia being a relatively high-cost gateway for the region's international trade. For instance, the policy note team gathered data to compare the costs for a 20-foot container (20 ton gross) for a Zambian importer via Dar es Salaam and via Walvis Bay.[17] Although Namibia has a speed advantage, it is roughly 25 percent more expensive than Tanzania: to get to its final destination in Zambia, the cost for a 20-foot container through Dar es Salaam is US$3,320 compared to US$4,180 from Walvis Bay.[18]

52. Another illustrative example comes from the automotive industry (which is mostly located in Gauteng). BMW previously expressed interest in the Trans-Kalahari Corridor, mainly because 60 percent of its export productions is destined for the U.S. using roll-on/roll-off vessels in Durban (a requirement for exports to the U.S.). In partnership with the South African Automotive Industry Development Centre (AIDC), trial shipments were carried out to the ports of Durban and Port Elizabeth in South Africa and the port of Walvis Bay in Namibia. The findings of the exercise, summarized in Table 10, were that while South African ports are more favorable, Walvis Bay port could provide a much reduced transit time if the port of Rotterdam can be bypassed (on condition that the required volumes are met at Walvis Bay) with lead time of up to three days. However, the study also identified infrastructure capacity as a key constraint as well as trade imbalance and the subsequent costs. Total transport costs were found to be about twice as much using the Trans-Kalahari Corridor compared to the South African routes.

Table 10. Durban versus Walvis Bay: Time and Cost Comparison

	Durban - Johannesburg)		**Trans Kalahari Corridor**
	Rail	Road	Road
Time (in days)			
Stacking	6	2	2
Transit time	2	1	2
Total Transit Time	**8**	**3**	**4**
Cost (in Namibian dollars)			
Port	2,720	2,720	2,373
Shipping	3,717	3,717	3,736
Transport	5,745	5,500	16,350
Clearing (custom bonds)	0	0	2,875
Total Cost	**12,182**	**11,937**	**25,334**

Source: South African Automotive Industry Development Centre

53. South African cargo owners and operators interviewed for this policy note do not view the Trans-Kalahari Corridor as a viable route.[19] Most of the manufacturing activities in

[17] Ideally, it would have been good to compare the costs of a whole range of commodities as well on the import as on the export sides for shipments using different ports on both sides of the African continent with a same destination in Zambia. Unfortunately, only limited costs information could be gathered.

[18] One must acknowledge that $860 represents a small portion of the value of the cargo.

[19] Interviews were conducted in May-June 2011 with large cargo owners (mining and manufacturing companies) and logistics companies – (transporting, forwarding, clearing and handling companies). Obviously, the team focused on Gauteng province since KwaZulu-Natal natural port is Durban and will not change due to the very short distance to the port. The corridor linking the Port of Walvis Bay to Gauteng in South Africa is the

South Africa are concentrated in Gauteng and in KwaZulu-Natal. The latter is captive to the port of Durban. Durban also has a distinct advantage over other ports in handling cargo for firms in Gauteng. To the extent that those firms look elsewhere to diversify their traffic, the improving performance of the port of Maputo provides Gauteng-based companies with a better alternative than Walvis Bay from a location point of view.

54. *Summary:* In conclusion, even though using Namibia's transit corridors shaves off total transport time, they are costlier than alternative options for many cargo owners in the region. Namibia has succeeded in growing its regional transport and logistics business in recent years, relying on advantages provided by efficient customs administration, a favorable business climate, shorter sea distance to Europe and the Americas, and a seaport that is not congested, as are many in the SADC region. To expand this business further, the country must address the range of constraints described in this section: unbalanced traffic along the corridors, infrequent calls by shipping lines at Namibian ports, a trend of declining road maintenance, and the industry's structure and managerial capacity, which are not conducive to rapid expansion.

V. What could be a way forward?

55. The foregoing suggests that Namibia should aim first to capture a niche in the region's international transport business, starting with the rapidly expanding trade associated with the mining sector in Zambia and DRC. Walvis Bay is at less of a distance disadvantage in these markets relative to competing ports than in most other parts of the region. At the same time it should work to maintain the traffic to Angola and secure a larger foothold in Zimbabwe. Namibia's size, location, and other factors make it unlikely for Walvis Bay to succeed in displacing Durban as the gateway for the bulk of the region's trade. Specializing in moving high-value, time-sensitive, mission-critical cargo plays to Namibia's strengths, for which Namibia's speed outweighs its cost disadvantage. Winning even a small slice of the region's business can have a large impact on Namibia's economy.

1. Market more aggressively

Direct calls

56. Many of the constraints discussed in the previous section are commercial problems that require commercial—rather than government policy—solutions. This seems particularly true for breaking the vicious cycle of few direct calls:

Walvis Bay handles low volumes of cargo
⇒ shipping lines make few direct calls
⇒ businesses send cargo to other ports
⇒ Walvis Bay handles low volumes of cargo…

57. In some problems of this nature, there is a specific constraint that the government can remove and thereby bring parties together to conduct a transaction.[20] In this case there does not seem to be any deficiency requiring government intervention. It seems instead more of a

Trans-Kalahari Corridor (TKC). Therefore discussions with the industry in South Africa mainly focused on this corridor as an alternative to South African corridors (mainly Durban and Cape Town).

[20] Common examples are the state issues a sovereign guarantee for a loan or provides a public good, e.g., the using the power of the state to enforce private contracts, thus enabling buyers and sellers to carry out transactions when otherwise neither would be able to credibly commit to its part of the bargain.

situation where Namport and WBCG are the appropriate third parties to aggressively court at shipping lines and market Namibia better, especially to mining companies in DRC and Zambia. In this regard, a commercial action has to be launched targeting mine suppliers and importers of sizable tonnages in Zambia in order to have them send their cargo via Walvis Bay (instead of Durban, for example). This could set in motion a virtuous cycle of more volumes and more direct calls. WBCG should probably strengthen its presence in the Copperbelt or Northwestern province (as media reports suggest it is doing) and further intensify its efforts to develop commercial relations with buyers of DRC-Zambia minerals since they are usually the ones organizing the transport.

Balancing traffic

58. To some degree a similar tactic could help balance traffic so that fewer trucks travel empty. A virtuous cycle that encourages landlocked countries to use the Trans-Caprivi Corridor for their exports could be set in motion by attracting a sufficiently large firm into the market, which can either reduce rates on the backhaul low enough to attract business by cross-subsidizing the leg to Walvis Bay or take advantage of its regional operations to, for example, carry cargo from Walvis Bay to DRC, run the truck empty to Zambia (absorbing that loss), where it picks up cargo for the return trip to Walvis Bay.

59. The need for the truck to run empty in this example highlights an important problem where government action is needed to allow firms to come together. Most SADC countries allow foreign-owned trucks to carry cargo back or forth to the transport company's home country, but not to or from a third country (the third country rule) or between two points in the country's domestic market (cabotage).[21] Like other beggar-thy-neighbor trade restrictions, the third country rule makes all countries in the region collectively worse off, in this case by reinforcing transport imbalances and raising trade costs for everyone. Removal of third country rule would allow for triangular trade, which can reduce empty backhauls. Returning to the previous example, the truck would carry loads on all three legs of the trip, optimizing use of the vehicle and enabling the operator to offer lower rates. The advantage for Namibia is that removing the third party rule would help it better balance inbound and outbound movements, thereby increasing tonnage and the competitiveness of the corridor system.

60. High search costs may prevent transporters from finding loads for the backhaul leg, and may even deter smaller operators from entering the regional market at all, given high fixed costs to obtaining information. Rapid improvements in information technologies make it possible to create business-to-business electronic marketplaces that allow transporters find loads. The TransZam information system provides one example. Transporters post offers of back loads with details about truck size, type, availability, etc., while others post analogous information about goods to be transported.[22]

2. Enhance the capabilities of people and firms in the sector

61. The government, business community, and academia need to work to increase the availability of skilled labor, including both technical and managerial skills. The training programs established by the Namibia Logistics Association and the Polytechnic are good foundations. Importing skills should also be part of the strategy, both to strengthen local capacity (through skills transfers) and to allow firms to expand their businesses and thereby increase total employment of unskilled labor (which is a complement to skilled labor rather than a

[21] Namibia and South Africa are exceptions in that they grant cabotage permits to trucks.
[22] The TransZam information system is a project of the Zambian Farmers Union and the European Union.

substitute). In this regard, tight visa/work permits regulation for temporary skilled workers should be relaxed.

62. Partnerships with international logistics and trucking companies should be supported via the WBCG to increase capacity of fleet operating on long haul routes. Having world-class international operators would also set a new benchmark and improve managerial capacity in Namibia through transfers of know-how and know-who to local firms.

3. Ensure adequate high-quality infrastructure

63. Although Namibia's transport network currently does not constrain corridor traffic, as volumes of traffic increase, so will the need for maintenance and expansion of Namibia's infrastructure.

Roads

64. The quality of Namibia's roads is already beginning to decline. Maintenance requirements will grow substantially as loads increase, and Namibia already faces a gap between revenue raised from road user charges and maintenance needs. How can Namibia address the gap? There are several options for raising revenue:

- The fuel levy provides the largest share of road user charge revenue (83 percent in 2008, according to Bruzelius [2009]). Increasing the fuel levy to raise revenue is attractive in terms of the low cost of collection, low revenue risk and simplicity. Among its disadvantages are that a fuel levy does not sufficiently recover the marginal damage inflicted on roads by heavy vehicles and the levy, like any tax, distorts prices in the market, creating incentives for fuel smuggling, for example.[23]
- Road tolls are currently used on some South African roads and, in principal, provide a means of charging heavy vehicles in proportion to their impact on road quality. They require substantial amount of traffic to be viable, however, and the existing traffic on Walvis Bay corridors is relatively low. [24]
- In principle, a mass-distance charge best internalizes the damages that heavier vehicles impose on roads. Such schemes are difficult to implement in practice, however.[25] Under a system of self-declaration of distance travelled (used in Namibia), it is difficult to control evasion of payments.

65. There is no easy solution. The user fee mechanism should be considered carefully to balance the need for recovering costs with keeping fees competitive with other transport routes. There may need to be continued support from the State Revenue Fund, which might be justified by the positive spillovers to the economy that are expected to emerge from the overall expansion of the transport and logistics sector.

66. There may be more room for addressing road maintenance on the spending side. Even though real spending on road *maintenance* has been stagnant since before Independence, by

[23] Road damage increases more sharply with vehicle weight than it does with fuel consumption.

[24] A rough rule of thumb in the road user charge literature is that "tolls should not be considered for roads with traffic less than 10,000 vehicles a day, to keep the administrative costs at a relatively low percentage of the toll revenues" (Queiroz et al. 2008, 3–4). Even along the busy stretch of road from the port in Walvis Bay to Swakopmund, the nearest city, total traffic was estimated to be around 4,700 vehicles per day in 2008 (SSAIEA 2008)—less than half the threshold for toll road viability.

[25] Only a handful of countries (and a few U.S. states) use mass-distance charges. New technologies using GPS devices, transponders, wireless networks, etc. may make implementation easier in the future.

2008 *total road spending* had increased in real terms to its 1980 level (when the spending decline began). Spending on administration and construction have been rising rapidly (Bruzelius 2009).

Railroads

67. There has been much discussion about rebuilding and modernizing Namibia's rail infrastructure, which has deteriorated considerably over the past several decades, as well as building international rail lines along the Trans-Caprivi and Trans-Kalahari routes to carry transit traffic. The main arguments advanced are that rail can move freight out of the port area more quickly than trucks and thereby prevent port congestion and that rail is a cheaper means of moving metals and minerals (e.g., copper from Zambia and coal from Botswana). Some South African logistics firms interviewed for this study indicated that they would prefer a rail link for certain manufactures (e.g., motor vehicles), provided the tariffs were competitive with road.

68. The principal challenge facing construction of the proposed international rail links is that the expected volumes of cargo to be moved would be so small that rail tariffs would not be competitive with road transport along the corridors unless railways are heavily subsidized—even though trucks are likely carrying cargo better suited for rail, the rail infrastructure cost might be prohibitively high. For example, a recent pre-feasibility study of options for a Trans-Kalahari Railroad (TKR) estimated that Botswana would potentially produce 40–75 million tons of coal annually for shipment to Europe and North America (CPCS 2009). Only at the high end of production would shipments cross the threshold of 70 million tons per year the authors of the study assumed would be needed for the entire project—including construction of a coal terminal at Walvis Bay—to have a positive net present value (CPCS 2011).

69. The challenges facing rail for moving cargo within Namibia are perhaps less severe. One rule of thumb is that annual freight traffic of 250,000 tons is the minimum threshold to maintain rail service (Arvis et al. 2011). In 2010, 120,000 tons were carried by rail along route from Walvis Bay to Ondangwa (the route followed by the Trans-Caprivi and Trans-Cunene corridors), and according to Ministry of Works and Transport officials, tonnage along this stretch is expected to double within two years after the rail extension to the Angolan border is completed. Improved rail

70. Transport infrastructure investments should be prioritized carefully to ensure value for money. In this regard, strengthening public investment management with for instance sound planning, independent appraisal of projects and rigorous impact evaluations is critical. Serious feasibility studies should be carried out before any investment takes place, particularly for big-ticket items such as international railroad construction. Box 1 on the following page spells out eight elements that can help minimize risks in public investment projects.

4. Be better than the best

71. Namibia has been able to overcome this distance—and therefore cost—disadvantage to some extent by providing a good services (public and private). One must recognize, however, that service industries are dynamic, and public and private service providers therefore must continually improve and innovate to maintain their business.

72. Namibia outperforms competitors along certain dimensions, but even being the best has not be good enough to get shippers to switch their business to Walvis Bay. Service providers operating along Walvis Bay Corridors need to be significantly better than their com-

Box 1 The Golden Rules of Public Investment Management

These elements would minimize major risks and provide an effective process for managing public investments:

1. *Investment Guidance and Preliminary Screening.* A first level screening of all project proposals should be undertaken to ensure that they meet the minimum criteria of consistency with the strategic goals of government.
2. *Formal Project Appraisal.* Projects or programs that meet the first screening test should undergo more rigorous scrutiny of their cost-benefit or cost effectiveness. The project selection process needs to ensure that projects proposed for financing have been evaluated for their social and economic value. The quality of ex ante project evaluation depends very much on the quality of the analysis, which, in turn, depends on the capacity of staff with project evaluation skills. Investment in training in project evaluation techniques is an important aspect of an effective public investment system.
3. *Independent Review of Appraisal.* Where departments and ministries (rather than a central unit) undertake the appraisal, an independent peer review might be necessary in order to check any subjective, self-serving bias in the evaluation.
4. *Project Selection and Budgeting.* It is important that the process of appraising and selecting public investment projects is linked in an appropriate way to the budget cycle even though the project evaluation cycle may run along a different timetable.
5. *Project Implementation.* Project design should include clear organizational arrangements and a realistic timetable to ensure the capacity to implement the project.
6. *Project Adjustment.* The funding review process should have some flexibility to allow changes in the disbursement profile to take account of changes in project circumstances. Each funding request should be accompanied by an updated cost-benefit analysis and a reminder to project sponsors of their accountability for the delivery of the benefits.
7. *Facility Operation.* Asset registers need to be maintained and asset values recorded. Ideally, countries should require their operating agencies to compile balance sheets, on which the value of assets created through new fixed capital expenditure would be maintained.
8. *Ex-post Project Evaluation.* Ex post project evaluation of completed projects should focus on the comparison of the project's outputs and outcomes with the established objectives in the project design. Good practice suggests that the project design should build in the evaluation criteria and that learning from such ex post evaluations is used to improve future project design and implementation.

Source: Rajaram et al. (2008).

petitors—in reliability, streamlined transit procedures, competitive port rates, short dwell time, and no congestion—to induce firms to shift their business to Namibia from ports in South Africa or elsewhere in the region.

73. Furthermore, they must ensure the continuous improvement of quality of transport and logistics services. Private sector associations, the corridor committees, and government bodies need to create systems for real-time monitoring of traffic along the corridors so that they can rapidly identify delays, address their causes, and collectively hold each other accountable to offering the highest quality services.

VI. Conclusion

74. With its small domestic economy, Namibia must exploit international trade to stimulate the economic restructuring and growth needed to achieve the objectives of Vision 2030. Establishing Namibia as a first-rate international transport and logistics hub for the SADC region can be one important element in a strategy of diversifying the economy into more productive activities.

75. If Namibia's small size is in one sense a disadvantage—the port of Walvis Bay does not enjoy the large economic hinterland and accompanying economies of scale that ports like Durban do—in another sense it is an advantage. Capturing even a small share of SADC countries' business translates into a large payoff for Namibia's economy. To do so, Namibia must use the advantages of smallness by being nimbler than its larger neighbors. Indeed, nimbleness is a necessity in the fast-changing world of modern services.

VII. Appendix

Table 11. Namibia's Major Trade Partners, 2010

Exports to *Country*	*Share*	*Growth*	**Imports from** *Country*	*Share*	*Growth*	**Total Trade with** *Country*	*Share*	*Growth*
South Africa	21%	13%	South Africa	73%	13%	South Africa	50%	13%
UK	16%	-3%	UK	5%	74%	UK	10%	3%
Angola	8%	15%	China	3%	15%	Angola	4%	16%
Spain	6%	7%	Germany	3%	23%	China	4%	20%
Italy	6%	2%	Netherlands	2%	72%	Netherlands	3%	51%
France	5%	44%	United States	1%	12%	Spain	3%	7%
Canada	5%	14%	Zambia	1%	115%	United States	3%	19%
Netherlands	5%	45%	India	1%	25%	Italy	3%	3%
United States	5%	22%	Switzerland	1%	20%	France	3%	43%
China	4%	29%	U.A.E.	1%	33%	Canada	2%	14%

Source: Commodity trade data provided by the Central Bureau of Statistics
Notes: Growth rates are computed as the compound average growth rate since 2006 using values in current Namibian dollars

Table 12. Volumes Handled at Namibian Ports, 2002/03–2010/11

Port of Walvis Bay	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Import	1,402,000	1,523,000	1,523,000	1,877,959	2,298,927	2,702,419	2,994,258	2,638,184	2,946,311
Export	902,000	1,068,000	1,104,000	1,000,955	1,156,899	1,251,316	1,219,750	1,239,511	1,372,240
Transship	47,000	172,000	328,000	329,078	507,304	439,001	824,044	1,023,476	871,886
Total Cargo	**2,351,000**	**2,763,000**	**2,955,000**	**3,207,991**	**3,963,131**	**4,392,736**	**5,038,052**	**4,901,170**	**5,190,437**

Port of Luderitz	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Import	155,000	176,000	184,000	172,635	107,285	128,168	126,629	140,082	129,526
Export	158,000	192,000	196,000	222,414	166,035	169,523	219,200	207,729	210,805
Transship	0	0	0	89	30	29	0	0	0
Total Cargo	**313,000**	**368,000**	**380,000**	**395,138**	**273,350**	**297,721**	**345,829**	**347,811**	**340,330**

Source: Namport annual reports
Notes: Volumes are in metric tons

Table 13. Commodities Handled at Port of Walvis Bay, 2005/06–2010/11

Imports	**2005/06**	**2006/07**	**2007/08**	**2008/09**	**2009/10**	**2010/11**
Petroleum	815,687	735,956	756,108	899,618	883,760	979,548
General Cargo	348,404	607,699	790,624	879,362	586,494	598,067
Sulfuric Acid	177,512	290,047	381,839	264,428	245,328	344,545
Vehicles	87,571	131,305	224,924	332,115	302,261	214,651
Copper/Lead and Concentrate	0	5,401	39,793	97,484	160,176	182,643
Fish Products	129,807	131,645	80,470	106,559	137,795	145,336
Coal	98,260	117,252	113,178	118,316	64,421	135,934
Cement	36,066	104,694	162,024	104,782	71,816	123,070
Sugar	56,928	59,835	58,515	92,495	85,689	115,601
Wheat	45,911	47,083	30,344	37,900	35,460	50,554
Malt	22,241	31,702	29,876	35,134	35,410	35,376
Manganese Ore	22,116	19,176	22,798	18,079	21,037	15,276
Lubricating Oil	242	286	22	506	1,188	3,972
Wine and Beverages	37,214	16,845	11,905	7,480	7,348	1,738
Total Imports	**1,877,959**	**2,298,927**	**2,702,419**	**2,994,258**	**2,638,184**	**2,946,311**

Exports	**2005/06**	**2006/07**	**2007/08**	**2008/09**	**2009/10**	**2010/11**
Salt-Bulk	472,526	506,034	563,936	547,576	460,429	570,694
Salt-Bagged	78,310	84,434	151,230	65,999	122,640	158,453
Fish Products	128,424	134,246	140,211	138,392	139,275	147,336
Copper/Lead and Concentrate	99,423	111,495	121,469	139,060	137,238	134,864
Fluorspar	117,337	128,624	111,746	93,351	112,206	98,878
Manganese Ore	0	36,006	41,115	86,962	79,314	89,832
Marble and Granite	44,225	82,610	39,877	62,205	83,893	77,107
Skins and Hides	15,664	22,286	34,056	42,658	53,768	37,536
Flat Cartons	30,773	38,992	41,742	17,709	25,735	31,300
Charcoal	6,792	6,343	3,007	19,304	18,635	19,904
Fertilizer (Guano)	5,962	4,840	1,914	5,500	5,170	4,994
General Cargo	1,518	990	1,012	1,034	1,210	1,342
Total Exports	**1,000,955**	**1,156,899**	**1,251,316**	**1,219,750**	**1,239,511**	**1,372,240**

Transshipped	**2005/06**	**2006/07**	**2007/08**	**2008/09**	**2009/10**	**2010/11**
General Cargo	317,866	494,967	433,412	799,509	1,009,846	859,531
Fish Products	11,212	11,890	5,588	24,535	13,630	12,355
Foodstuffs	0	448	1	0	0	0
Total Transshipped	**329,078**	**507,304**	**439,001**	**824,044**	**1,023,476**	**871,886**

Source: Namport annual reports
Notes: Data are in metric tons; fiscal year runs September–August

Table 14. Commodities Handled at Port of Luderitz, 2005/06–2010/11

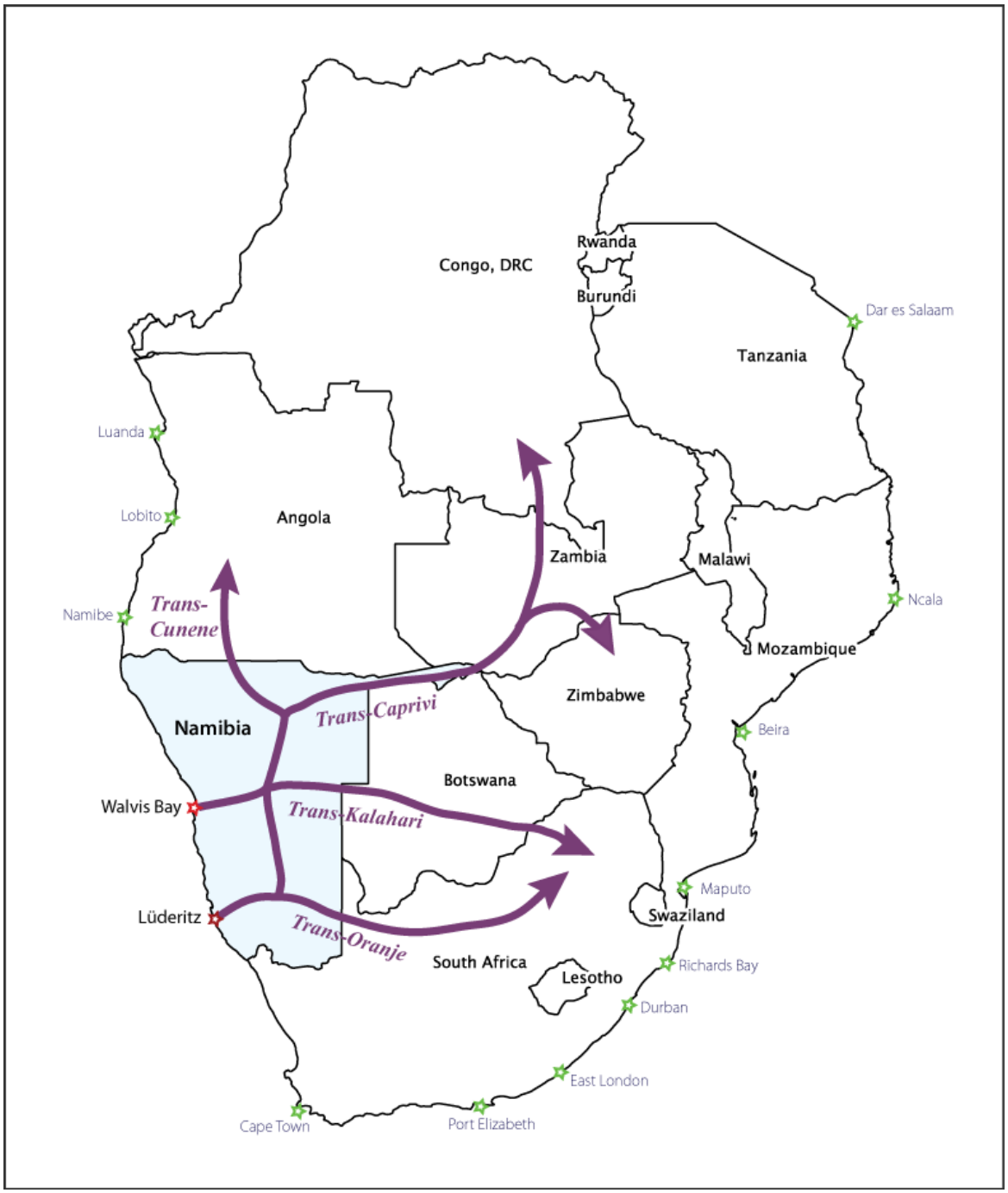
Imports	**2005/06**	**2006/07**	**2007/08**	**2008/09**	**2009/10**	**2010/11**
Sulfur	68,784	45,568	72,154	61,980	74,773	69,540
Diesel Oil	50,953	30,494	28,518	35,331	31,923	30,264
Frozen Fish	503	2,643	19,054	23,027	22,902	19,128
Wet Fish	50,195	19,676	2,725	4,990	7,927	5,626
Other	2,200	8,904	5,718	1,301	2,557	4,968
Total Imports	**172,635**	**107,285**	**128,168**	**126,629**	**140,082**	**129,526**

Exports	**2005/06**	**2006/07**	**2007/08**	**2008/09**	**2009/10**	**2010/11**
Zinc	167,944	115,459	115,352	166,723	149,006	156,537
Frozen Fish	24,022	27,688	28,271	27,455	26,238	28,449
Ice	29,145	21,451	23,948	22,398	28,645	23,949
Other	825	1,394	1,952	2,542	3,840	1,749
Wet Fish	479	44	0	82	0	121
Total Exports	**222,414**	**166,035**	**169,523**	**219,200**	**207,729**	**210,805**

Transshipped	**2005/06**	**2006/07**	**2007/08**	**2008/09**	**2009/10**	**2010/11**
Frozen Fish	89	0	29	0	0	0
Other	0	30	0	0	0	0
Total Transshipped	**89**	**30**	**29**	**0**	**0**	**0**

Source: Namport annual reports
Notes: Data are in metric tons; fiscal year runs September–August

Figure 13. International Transit Corridors Connected to Namibian Ports



Source: Taken from Walvis Bay Corridor Group materials

Table 15. Walvis Bay Corridors Traffic by Country, 2005–2011

		2005	2006	2007	2008	2009	2010	2011
	To	76,832	122,002	178,563	309,755	445,073	287,877	209,627
Angola	From	0	0	0	0	0	0	0
	Total	**76,832**	**122,002**	**178,563**	**309,755**	**445,073**	**287,877**	**209,627**
	To	11,565	7,644	17,866	37,034	31,010	53,933	91,536
Zambia	From	0	0	88	946	12,538	39,520	39,226
	Total	**11,565**	**7,644**	**17,954**	**37,980**	**43,548**	**93,453**	**130,762**
	To	0	279	62	1,286	5,271	22,842	94,428
Zimbabwe	From	0	0	0	615	0	66	582
	Total	**0**	**279**	**62**	**1,901**	**5,271**	**22,908**	**95,010**
	To	538	1,748	6,849	39,309	19,353	29,089	45,273
DRC	From	0	0	0	1,034	1,276	0	0
	Total	**538**	**1,748**	**6,849**	**40,343**	**20,629**	**29,089**	**45,273**
	To	1,324	943	4,172	2,642	4,129	8,935	18,150
Botswana	From	1,210	1,060	558	582	132	286	339
	Total	**2,534**	**2,003**	**4,730**	**3,224**	**4,261**	**9,221**	**18,489**
	To	0	27	0	0	195	762	2,271
Malawi	From	0	0	0	0	66	1,100	1,452
	Total	**0**	**27**	**0**	**0**	**261**	**1,862**	**3,723**
	To	1,394	1,094	1,049	3,304	308	895	1,148
South Africa	From	0	44	1,154	1,295	308	2,889	1,861
	Total	**1,394**	**1,138**	**2,203**	**4,599**	**616**	**3,784**	**3,009**
	Outbound	91,652	133,738	208,561	393,329	505,339	404,334	462,433
All	Inbound	1,210	1,104	1,800	4,472	14,320	43,861	43,460
	Total	**92,862**	**134,842**	**210,361**	**397,801**	**519,659**	**448,195**	**505,893**

Source: Walvis Bay Corridor Group data
Notes: Data are in metric tons and reported on calendar years

Table 16. Major Transit Trade Products, 2010

To Angola		To Botswana		To Zambia	
Product	***Share***	***Product***	***Share***	***Product***	***Share***
Motor vehicles (87)	29%	Motor vehicles (87)	43%	Motor vehicles (87)	38%
Machinery (84)	8.0%	Arms and ammunition (93)	32%	Chemical products (38)	17%
Furniture and lighting (94)	7.0%	Footwear (64)	13%	Plastics (38)	7.3%
Beverages and spirits (22)	6.2%	Tobacco products (24)	4.7%	Beverages and spirits (22)	7.1%
Electrical equipment (85)	5.1%	Rubber articles (40)	2.2%	Machinery (84)	5.6%
Articles of iron or steel (73)	4.4%	Knitted apparel (61)	1.8%	Inorganic chemicals (28)	4.0%
Vegetables and tubers (07)	4.4%	Wood products (44)	1.3%	Optical equipment (90)	3.0%
Tobacco products (24)	2.6%	Machinery (84)	0.5%	Electrical equipment (85)	2.5%

From Angola		From Botswana		From Zambia	
Product	***Share***	***Product***	***Share***	***Product***	***Share***
Printed material (49)	22%	Motor vehicles (87)	44%	Copper (74)	96%
Machinery (84)	8.2%	Machinery (84)	27%	Ores, slag and ash (26)	1.5%
Motor vehicles (87)	5.9%	Inorganic chemicals (28)	10%	Machinery (84)	0.9%
Electrical equipment (85)	5.3%	Apparel, not knitted (62)	3.9%	Coffee, tea, spices (09)	0.6%
Articles of iron or steel (73)	4.0%	Furniture and lighting (94)	3.7%	Misc dairy and food (04)	0.4%
Toys and games (95)	0.9%	Electrical equipment (85)	2.2%	Wood and charcoal (44)	0.4%
Tobacco products (24)	0.3%	Cement, stone, earths (25)	2.0%	Iron or steel articles (73)	0.2%
Plastics (38)	0.3%	Aircraft and parts (88)	1.9%	Motor vehicles (87)	0.1%

Source: Transit customs declaration data provided by Ministry of Finance
Notes: HS chapter codes in parentheses. Shares are of total value in Namibian dollars. Data include goods from South Africa to Angola by land, not solely goods arriving at Walvis Bay and then transported to Angola.

References

Arvis, Jean François, Robin Carruthers, Graham Smith, Christopher Willoughby. 2011. *Connecting Landlocked Developing Countries to Markets,* Washington: World Bank.

Bruzelius, Nils. 2009. The Namibian Road Sector: Background and Evaluation.

CPCS Transcom International Limited. 2009. Pre-Feasibility Study of the Three Rail Links: Trans-Kalahari Railway, Mmamabula-Ellisras and Mosetse-Kazungula: Inception Report.

———. 2011. Pre-Feasibility Study of the Three Rail Links: Trans-Kalahari Railway, Mmamabula-Ellisras and Mosetse-Kazungula: Pre-Feasibility Study of the TKR (Final Report).

Gwilliam, Ken, Vivien Foster, Rodrigo Archondo-Callao, Cecilia Briceño-Garmendia, Alberto Nogales, and Kavita Sethi. The Burden of Maintenance: Roads in Sub-Saharan Africa. AICD Background Paper 14 (Phase 1).

Japan International Cooperation Agency (JICA). 2010. Preparatory Survey for Southern Africa Integrated Regional Transport Program Final Report.

Notteboom, Theo. 2010. Dock Labour and Port-Related Employment in the European Seaport System. Report prepared for European Seaports Organisation.

Queiroz, Cesar, Barbara Rdzanowska, Robert Garbarczyk, and Michel Audige. 2008. Road user Charges: Current Practice and Perspectives in Central and Eastern Europe. Transport Papers No. TP-23. Washington: World Bank.

Ranganathan, Rupa, and Vivien Foster. 2011. The SADC's Infrastructure: A Regional Perspective. Policy Research Working Paper No. 5898. Washington: World Bank.

Rajaram, Anand. Tuan Minh Le, Nataliya Biletska, Jim Brumby. 2010. A Diagnostic Framework for Assessing Public Investment Management. Policy Research Working Paper No. 5397. Washington: World Bank.

Runji, J. 2003. Road Sector Reforms in Namibia.

Southern African Institute for Environmental Assessments (SAIEA). 2008. Strategic Environmental Assessment of the Central Namib Uranium Rush.